To: Jerone Guinn   Date: 10/8/80

From: M. Tomczyk   cc: T. Tokai
                                      J. Tramiel
                                      D. Sanford
Subject: VIC 20 Product Parameters   KIT SPENCER

Based on our last discussion in California, here is my input on VIC 20:

1. KEYBOARD

    a. Graphic Keys...IDENTICAL to Japanese Version. Symbols should
        be inscribed on the front of each key.

    b. Tops of Keys...identical to Japanese keyboard, with one exception.
        The "YEN" key at the top righthand corner will be changed to show
        a BACKSLASH (unshifted) and ENGLISH POUND SIGN (shifted).
        Software/hardware should be modified as required. The English
        pound sign is, of course, a captial L with a line through it.

    c. Function Keys...will be numbered consecutively 1-8 as you read
        down the row (f1 is the top key unshifted, f2 is the top key
        shifted, f3 is the second key unshifted, and so on).

        ...Function keys will be PROGRAMMABLE in the U.S. version of the
        VIC but will be PREASSIGNED with the following designations:

            F1...SCOLOR   (screen color)
            F2...BCOLOR   (border color)
            F3...SOUND   (sound command)
            F4...VOL   (set volume)
            F5...START   (initiate ROM, tape, disk, game, etc.)
            F6...LIST   (for programming & learning)
            F7...OPTION A   (to emphasize programmability and give
            F8...OPTION B   software developers 2 keys to use for
                                program commands, courseware, game controls,
                                etc.)

    d. Function Key Decals...2 stick-on decals should be included with every
        CPU. One decal will contain the PREASSIGNED FUNCTIONS and is intended
        to be stuck on the keyboard along with the RIGHT SIDE of the function
        keys. It should take the form of a vertical tab showing each key's
        function, as listed above. The SECOND TAB should be BLANK, so the
        programmer/user can write in his own function key designations. This
        is a clever, inexpensive way of showing the preassigned functions without
        having to silk screen or print on the machine. We will ENCOURAGE
        software providers to include function key assignment tabs with their
        products if they reassign these keys for special purposes.

e. Making Room for Function Keys...I am told that there are trade-offs involved, but that we can get both sound and programmable function keys (the two biggest memory users) in the basic CPU. Jack Martinelli has an idea about compressing and improving our cassette interface software as one possible solution. This would be okay from a marketing standpoint...it would mean, as I understand it, that a special routine would be required to use a PET tape on a VIC or vice-versa. Since VIC and PET are 2 separate machines, I don't see tape cassette compatibility as a problem. We will still have disk compatibility, and I feel that VIC/TOI compatibility is more important than VIC/PET.

2. RF MODULATOR

a. I understand that the RF Modulator will cost us $13 and that the basic CPU cost is already near $100. These economics suggest that we must sell the CPU at $299.95 and sell the RF Modulator as a separate item. Is this a correct assumption? If so, let's proceed on that basis. What will the RF Modulator sell for? Will we sell direct or arrange for a vendor to provide modulators to our dealers? Will other modulators work on the VIC? I would say let's try to sell the RF Modulators ourselves even if we buy outside, if only because some of our dealers will not be computer stores and should be able to get modulators from us.

b. F.C.C. Approval...how does this impact on our modulator? I've been told that Apple doesn't sell a modulator themselves because that puts them in violation of the FCC codes...but if the individual owner buys a modulator then the decision is legally the individual's. Is this true? It may determine whether we sell the modulator ourselves or not.

3. BASIC PRODUCT LINE

The basic VIC 20 product line will include the following items:

-- BASIC CPU with powerpack, decals, manual............$299.95
-- RF MODULATOR.......................................$?
-- TAPE CASSETTE......................................$ 75.00
-- 3K MEMORY EXPANDER (plug-in RAM)...................$?
-- 2031 DISK DRIVE....................................$?
-- COMMODORE LEARNING SERIES - Book/Tape 1............$ 14.95

4. ISSUES TO RESOLVE

a. BASIC CPU...American keyboard, powerpack, function key programmability, decals, FCC acceptance, and RF Modulator.

b. TAPE CASSETTE...beige color to match VIC 20, do we need different software/cassette routine and price ($75??).

c. 2031 DISK DRIVE...should we include 2 connectors on the drive (IEEE & Serial) so a VIC user can upgrade compatibility to the TOI? Two connectors removes our ability to price VIC 2031 and PET 2031 differenctly, but provides manufacturing efficiency and provides a more "user friendly" machine which can be used for both the VIC and PET.

   d.   USER MANUAL...Dymax will tentatively write for us. Completion
        timing -- December.

   e.   REFERENCE MANUAL...partly written, to be sold as an extra item
        mostly for hobbyists and programmers.

   f.   CLS...first book & tape series to be completed by Avalanche
        Productions by Jan. 1...theme is "Introduction to Computing...
        On the VIC".

5. SOFTWARE DEVELOPMENT PACKAGE

   a.   We need someone assigned to write a software development kit which
        I can give to software houses. It should include an explanation of
        the "kernel", memory maps and any other information which a software
        developer should have to write programs...including tips on use
        of RAM space, the ability to put 3K RAM in plug-in ROM packs, sound,
        color, etc. I anticipate that most programs will be written in
        machine code.

   b.   The timing on the software development package is 2 weeks...trying
        to have something we can "instant-print", with disk(s) if applicable,
        by 20 OCTOBER.

6. PROTOTYPES

   a.   Software Development...I would like at least 10 working prototype
        VIC 20's by OCTOBER 20th if possible. Software developers need a
        long lead time but most important use will be for our user manual
        authors, who will need a working machine to use in developing how-to
        literature, and the "Commodore Learning Series" book-and-tape
        producers. I would like to distribute CPU's on a strictly controlled
        basis around October 20 so we can have software and manuals done by
        January 8.

   b.   Promotion...I'd also like one "clean" CPU for use in developing
        advertising/promotion, which has to occur 2-3 months in advance of
        introduction.

7. JAPAN/U.S. INTERFACE

   a.   Design Meeting...it looks like it's time for a U.S. - Japan design
        meeting to fix bugs, share information and exchange ideas. One or
        two U.S. engineers going to Japan for a day or two might be the
        answer, or vice-versa.

   b.   Documentation...be sure to forward the VIC reference manual to Commodore
        Japan if anything is added to the original. They are now translating
        the original but I'm not sure if it's complete. Conversely, Commodore
        Japan should tell us if they've added anything to the reference manual.
        I will make sure Japan receives the user manual as soon as it is ready
        in draft form, so they can translate if desired. Tony Tokai should
        decide what he wants to do about the user manual (which we include
        free with the CPU) and the reference guide, which we sell separately.

Please contact me promptly in Norristown if you have any questions. Tony Tokai mentioned in his last telex that there are "various options" which will "make VIC almost compatible with TOI." Can we have your engineers explore this with Tony and Yashi Terakura to see what it means?

I will be coming to Santa Clara around October 16 (or sooner if necessary) and we can resolve remaining problems then.

Best regards.

Michael S. Tomczyk
Marketing/Operations
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